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| EXAMINER | |
|---|---|
| MOORE, IAN N | |

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| 2661 | |

DATE MAILED: 06/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/773,245 | HAMELEERS ET AL. | |
| | Examiner | Art Unit | |
| | Ian N. Moore | 2661 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *13 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *42-77* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *42-77* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Amendment*

1. Claims 1-41 are cancelled, and new claims 42-77 are added.

2. Claims 42-77 are rejected by the new ground(s) of rejection necessitated by the amendment.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 42-48, 51-57, 60-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Billstrom (U.S. 5,590,133) in view of Rasanen'006 (U.S. 6,647,006).

**Regarding Claim 42**, Billstrom discloses a method for data transmission between a circuit switched network (see FIG. 1, digital cellular packet domain), via an interface means (see FIG. 1, a combined interface system of HLR, HLR interrogation server, PD controller, MSC/VLR, OMC, NAS, and IWF) that includes a media gateway (see FIG. 1, IWF), and a packet switched network (see FIG. 1, Internet, PSPDN), the method comprising:

coupling the circuit switched network to the packet switched network with the interface means (see col. 7, lines 40 to col. 8, lines 21), wherein two network layers in the circuit switched network are used for carrying the data transmission (see FIG.

1, signaling/application level/layer and transport/transmission level/layer in digital cellular network; see col. 6, lines 34 to col. 7, lines 39), via the interface means, between the circuit switched network and the packet switched network (see FIG. 1, via a combined interface system between cellular network and Internet);

processing signaling Information associated with the data transmission in the circuit switched network on a first network layer of the two network layers (see FIG. 1, a combined signaling level/layer of HLR, HLR interrogation server, PD controller, BSC, MSC/VLR, OMC, and NAS; see col. 6, lines 34-65; see col. 9, lines 20-34; note that a combined signaling level/layer transfers/establishes the signaling information for call/connection);

transferring the payload information associated with the data transmission on a second network layer of the two network layers (see FIG. 1, a combined transport/transmission level/layer of MS, BTS and MSC and IWF) in the circuit switched network (see col. 6, lines 65 to col. 8, lines 21; see col. 9, lines 20 to col. 10, lines 6; note that a combined transport/transmission level/layer transfers/communicates the packet/voice information) utilizing a protocol stack (see FIG.2, protocol stack), the protocol stack comprising:

a first protocol stack in a mobile station (see FIG. 2, MS TE+MT protocol stack), the first protocol stack coupled to

a second protocol stack in a radio network means (see FIG. 2, BTS protocol stack and/or MSC stack), the second protocol

stack being coupled to

a third protocol stack in the media gateway (see FIG. 2, IWF protocol stack); and

information frame generating means (see FIG. 2 and 3 BTS, Base Transceiver Station) for generating an information frame

containing payload information associated with the data transmission responsive to detecting a received information frame (see col. 8, lines 1-46; note that BTS generates the information packet/frame when a data frame is transmitted/received to/from the MS, and each TCP/IP frame/packet contains header (i.e. payload information)); and

wherein information frames are forwarded to the packet switched network via a direct connection between the radio network means and the media gateway (see FIG. 1, data frames are forwarded to Internet via a direction connection between cellular network domain and IWF; see col. 8, lines 1-21; col. 7, lines 40-56).

Billstrom does not explicitly disclose lacking payload information; a first discontinuous transmission means discarding the received information frame to improve data rate. However, Rasanen'006 teaches a first protocol stack in a mobile station (see FIG. 1A-B, MS/TAF protocol stack), the first protocol stack coupled to

a second protocol stack in a radio network means (see FIG. 1A-B, BSS protocol stack), the second protocol

stack being coupled to

a third protocol stack In the media gateway (see FIG. 1A-B, IWF protocol stack); and

information frame generating means (see FIG. 1A-B, BSS) for generating an information frame containing payload information associated with the data transmission (see FIG. 1A-B; note that BSS generates the information packet/frame when a data frame is transmitted/received to/from the MS, and each frame/packet contains header (i.e. payload information; see col. 7, lines 26-62); and

responsive to detecting a received information frame lacking payload information, a first discontinuous transmission (DTX) means in the second protocol stack (see FIG. 1A-B, BSS with discarding means) discarding the received information frame to improve the data rate (see col. 7, lines 25-62; see col. 8, lines 22-67; see col. 5, lines 15 to col. 6, lines 46; discarding the fill/empty frame to improve the rate),

wherein remaining information frames are forwarded to the packet switched network (see col. 5, lines 50-56; Internet) via a direct connection between the radio network means (see FIG. 1A-B, BSS) and the media gateway (see FIG. 1A-B, IWF; see col. 7, lines 25-62; see col. 5, lines 1567; non-empty/fill frame are forwarded to Internet).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide discarding/discontinuous transmission means at BSS when detecting a fill/empty data, as taught by Rasanen'006 in the system of Billstrom, so that it would not require any other changes at the radio interface or the network interface, nor does it restrict their further development in any way. The motivation being that by discarding the fill data that gateway IWF unit, it

will reduce the packet processing at the radio and network interface while preparing the network for further development.

**Regarding Claim 43**, Billstrom discloses wherein the circuit switched network is a cellular telephone network (see FIG. 1, digital cellular packet domain), the radio network means is a Base Transceiver Station (BTS) (see FIG. 1, BTS), the packet switched network is the Internet (see FIG. 1, Internet), and the second layer of the two network layers further comprises Information frame generating means (see FIG. 2 and 3 BTS, Base Transceiver Station) for generating an information frame with a receive sequence number (see col. 8, lines 1-46; note that BTS generates the information packet/frame with a received TCP/IP sequence number to/from the MS. Also, note that each TCP/IP packet/frame has a sequence number). Rasanen'006 also discloses the GSM cellular network, BSS that comprises BTS, Internet, and generating a information frame as set forth in claim 42 above.

**Regarding Claim 44**, Billstrom discloses wherein the circuit switched network is a GSM cellular telephone network (see col. 6, lines 10-36; GSM system).

**Regarding Claim 45**, Rasanen'006 discloses adapting a transfer rate of the payload information within the BTS (see FIG. 1A-B and 2, BTS with Rate Adaptation, RA; see col. 5, lines 15 to col. 6, lines 41). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide rate adaptation by discarding means, as taught by Rasanen'006 for the same motivation as stated above in claim 42.

**Regarding Claim 46**, Rasanen'006 discloses disabling a second DTX means (see FIG. 1 A-B, IWF discarding means) in the third protocol stack (see FIG. 1 A-B, IWF; see col. 7, lines 26 to col. 8, lines 21; from MS to IWF, when BSS/BTS is discarding the fill/empty frames, IWF discarding means in IWF is disable since the fill/empty frames are also discarded at BSS/BTS). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide rate adaptation by discarding means, as taught by Rasanen'006 for the same motivation as stated above in claim 42.

**Regarding Claim 47**, Billstrom discloses generating information frames containing payload information in the first protocol stack (see FIG. 2 and 3; MS protocol stack creates information frame with TCP/IP header which contains payload information; see col. 8, lines 1-46).

**Regarding Claim 48**, Billstrom discloses monitoring the generated information frames for determining whether the generated information frames contain payload information (see col. 6, lines 65 to col. 8, lines 21; BSS/BTS determines the payload information from the received frames). Rasanen'006 also discloses monitoring the generated information frames for determining whether the generated information frames contain payload information (see col. 7, lines 25-62; see col. 8, lines 22-67).

**Regarding Claim 51**, Billstrom discloses a method for data transmission from a packet switched network (see FIG. 1, Internet, PSPDN), via an interface means (see FIG. 1, a combined interface system of HLR, HLR interrogation server, PD

controller, MSC/VLR, OMC, NAS, and IWF) that includes a media gateway (see FIG. 1, IWF), to a circuit switched network (see FIG. 1, digital cellular packet domain), the method comprising:

coupling the packet switched network to the circuit switched network with the interface means (see col. 7, lines 40 to col. 8, lines 21), wherein two network layers in the circuit switched network are used for carrying the data transmission (see FIG. 1, signaling/application level/layer and transport/transmission level/layer in digital cellular network; see col. 6, lines 34 to col. 7, lines 39) via the Interface means between the packet switched network and the circuit switched network (see FIG. 1, via a combined interface system between Internet and cellular network):

receiving the data transmission from the packet switched network in the media gateway (see FIG. 1, and see col. 7, lines 30 to col. 8, lines 21; the data information is received at IWF from Internet);

processing signaling Information associated with the data transmission in the circuit switched network on a first network layer of the two network layers (see FIG. 1, a combined signaling level/layer of HLR, HLR interrogation server, PD controller, BSC, MSC/VLR, OMC, and NAS; see col. 6, lines 34-65; see col. 9, lines 20-34; note that a combined signaling level/layer transfers/establishes the signaling information for call/connection);

transferring the payload information associated with the data transmission on a second network layer of the two network layers (see FIG. 1, a combined transport/transmission level/layer of MS, BTS and MSC and IWF) in the circuit

switched network (see col. 6, lines 65 to col. 8, lines 21; see col. 9, lines 20 to col. 10, lines 6; note that a combined transport/transmission level/layer transfers/communicates the packet/voice information) utilizing a protocol stack (see FIG.2, protocol stack), the protocol stack comprising:

a first protocol stack in the media gateway (see FIG. 2, IWF protocol stack), the first protocol stack coupled to

a second protocol stack in a radio network means (see FIG. 2, BTS protocol stack and/or MSC stack), the second protocol

stack being coupled to

a third protocol stack in a mobile station (see FIG. 2, MS TE+MT protocol stack); and

information frame generating means (see FIG. 2 and 3 IWF) for generating an information frame containing payload information associated with the data transmission responsive to detecting a received information frame (see col. 8, lines 1-46; note that IWF generates the information packet/frame when a data frame is transmitted/received to/from the Internet, and each TCP/IP frame/packet contains header (i.e. payload information)); and

wherein remaining information frames are forwarded to the mobile station via a direct connection between the media gateway and the radio network means (see FIG. 1 and 2; TCP/IP frames are forwarded to MS via a direction connection between IWF and cellular network domain; see col. 8, lines 1-21; col. 7, lines 40-56).

Billstrom does not explicitly disclose lacking payload information; a discontinuous transmission means discarding the received information frame to improve data rate. However, Rasanen'006 teaches a first protocol stack in the media gateway (see FIG. 1A-B, IWF protocol stack), the first protocol stack coupled to

a second protocol stack in a radio network means (see FIG. 2, BTS protocol stack and/or MSC stack), the second protocol

stack being coupled to

a third protocol stack in a mobile station (see FIG. 1A-B, MS/TAF protocol stack); and

information frame generating means for generating an information frame containing payload information associated with the data transmission (see FIG. 1A-B; note that IWF generates the information packet/frame when a data frame is transmitted/received to/from the MS, and each frame/packet contains header (i.e. payload information; see col. 7, lines 62 to col. 8, lines 22; see col. 5, lines 15-65); and

responsive to detecting a received information frame lacking payload information, a first discontinuous transmission (DTX) means in the first protocol stack (see FIG. 1A-B, IWF with discarding means) discarding the received information frame to improve the data rate (see col. 7, lines 62 to col. 8, lines 21; see col. 9, lines 1-26; see col. 5, lines 15 to col. 6, lines 46; discarding the fill/empty frame),

wherein remaining information frames are forwarded to the mobile station (see FIG. 1 A-B, MS) via a direct connection between the media gateway (see FIG. 1A-B, IWF) and the radio network means (see FIG. 1A-B, BSS; non-empty/fill frames are forwarded to MS; see col. 8, lines 1-21; col. 7, lines 40-56).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide discarding/discontinuous transmission means at IWF when detecting a fill/empty data, as taught by Rasanen'006 in the system of Billstrom, so that it would not require any other changes at the radio interface or the network interface, nor does it restrict their further development in any way. The motivation being that by discarding the fill data that gateway IWF unit, it will reduce the packet processing at the radio and network interface while preparing the network for further development.

**Regarding Claim 52**, a claim which that substantially all the limitations of the respective method claim 43. Therefore, it is subjected to the same rejection.

**Regarding Claim 53**, a claim which that substantially all the limitations of the respective method claim 44. Therefore, it is subjected to the same rejection.

**Regarding Claim 54**, a claim which that substantially all the limitations of the respective method claim 45. Therefore, it is subjected to the same rejection.

**Regarding Claim 55**, a claim which that substantially all the limitations of the respective method claim 46. Therefore, it is subjected to the same rejection.

**Regarding Claim 56**, Billstrom discloses generating information frames containing payload information in the first protocol stack (see FIG. 2 and 3; IWF

creates information frame with TCP/IP header which contains payload information; see col. 8, lines 1-46). Rasanen'006 also discloses generating information frames containing payload information in the first protocol stack (see FIG. 1A-B, IWF generates frames with payload information; see col. 7, lines 60 to col. 8, lines 22; see col. 9, lines 1-25).

**Regarding Claim 57**, Billstrom discloses monitoring the generated information frames for determining whether the generated information frames contain payload information (see col. 6, lines 65 to col. 8, lines 21; IWF determines the payload information from the received frames). Rasanen'006 also discloses monitoring the generated information frames for determining whether the generated information frames contain payload information (see col. 7, lines 60 to col. 8, lines 22; see col. 9, lines 1-25).

**Regarding Claim 60**, a network element claim which that substantially all the limitations of the respective method claim 42. Therefore, it is subjected to the same rejection.

**Regarding Claim 61**, Billstrom discloses monitoring the generated information frames in the second protocol stack (see col. 6, lines 65 to col. 8, lines 21; BSS/BTS monitors and determine the payload information from the received frames). Rasanen'006 also discloses monitoring the generated information frames in the second protocol stack.

**Regarding Claim 62**, a network element claim which that substantially all the limitations of the respective method claim 43. Therefore, it is subjected to the same rejection.

**Regarding Claim 63**, a network element claim which that substantially all the limitations of the respective method claim 44. Therefore, it is subjected to the same rejection.

**Regarding Claim 64**, a network element claim which that substantially all the limitations of the respective method claim 45. Therefore, it is subjected to the same rejection.

**Regarding Claim 65**, a network element claim which that substantially all the limitations of the respective method claim 46. Therefore, it is subjected to the same rejection.

**Regarding Claim 66**, a network element claim which that substantially all the limitations of the respective method claim 47. Therefore, it is subjected to the same rejection.

**Regarding Claim 67**, a network element claim which that substantially all the limitations of the respective method claim 48. Therefore, it is subjected to the same rejection.

**Regarding Claim 70**, a network element claim which that substantially all the limitations of the respective method claim 51. Therefore, it is subjected to the same rejection.

**Regarding Claim 71**, a claim which that substantially all the limitations of the respective method claim 52. Therefore, it is subjected to the same rejection.

**Regarding Claim 72**, a claim which that substantially all the limitations of the respective method claim 53. Therefore, it is subjected to the same rejection.

**Regarding Claim 73**, a claim which that substantially all the limitations of the respective method claim 54. Therefore, it is subjected to the same rejection.

**Regarding Claim 74**, a claim which that substantially all the limitations of the respective method claim 55. Therefore, it is subjected to the same rejection.

**Regarding Claim 75**, a claim which that substantially all the limitations of the respective method claim 56. Therefore, it is subjected to the same rejection.

**Regarding Claim 76**, a claim which that substantially all the limitations of the respective method claim 57. Therefore, it is subjected to the same rejection.

5. Claims 49,50,58,59,68,69, and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Billstrom in view of Rasanen'006 as applied to claim 41 above, and further in view of Mallory (U.S. 6,335,933).

**Regarding Claim 49**, the combined system of Billstrom and Rasanen'006 discloses frame having sequence number as described above in claims 42, 43,47,48 above. Rasanen'006 discloses detecting an "S" frame, which carries supervisory information (see col. 9, lines 40-49; a RLP frame with denoted status and control bit), and discarding the "S" frame (see col. 7, lines 30-51; see col. 8, lines 24-67; discarding a denoted status and control bit RLP frame).

Neither Billstrom nor Rasanen'006 explicitly discloses step if the frame receive sequence number is equal to that of a previous frame. However, Mallory discloses detecting a frame (see FIG. 10, S2 yes, New sequence number?; see Mallory col. 9, lines 30-35, 50-52; when the frame type is LARQ frame), and

if the frame receives sequence number is equal to that of a previous frame (see FIG. 10, Duplicate or too old?; see col. 9, lines 50-54; determine whether the current frame sequence number duplicates previously received sequence number), discarding the frame (see FIG. 10, Duplicate YES, drop frame; col. 2, lines 52-59).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to detect frame type and sequence number and dropping the duplicate frames, as taught by Mallory, in the combined system of Billstrom and Rasanen'006, so that it would provide reduce effective frame lost rates and delays with minimal cost in terms network bandwidth and host resources; see Mallory col. 2, lines 50-60.

**Regarding Claim 50**, Billstrom discloses monitoring the generated information frames in the second protocol stack (see col. 6, lines 65 to col. 8, lines 21; BSS/BTS monitors and determine the payload information from the received frames). Rasanen'006 also discloses monitoring the generated information frames in the second protocol stack (see col. 7, lines 26-62; see col. 8, lines 22-67).

**Regarding Claim 58**, Billstrom discloses monitoring the generated information frames in the first protocol stack (see col. 6, lines 65 to col. 8, lines 21; IWF monitors and determine the payload information from the received frames).

Rasanen'006 also discloses monitoring the generated information frames in the first protocol stack (see col. 7, lines 60 to col. 8, lines 22; see col. 9, lines 1-25).

**Regarding Claim 59**, a claim which that substantially all the limitations of the respective method claim 49. Therefore, it is subjected to the same rejection.

**Regarding Claim 68**, a network element claim which that substantially all the limitations of the respective method claim 50. Therefore, it is subjected to the same rejection.

**Regarding Claim 69**, a network element claim which that substantially all the limitations of the respective method claim 49. Therefore, it is subjected to the same rejection.

**Regarding Claim 77**, a network element claim which that substantially all the limitations of the respective method claim 59. Therefore, it is subjected to the same rejection.

## *Conclusion*

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N. Moore whose telephone number is 571-272-3085. The examiner can normally be reached on M-F: 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau T. Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

INM
5/5/05

BOB PHUNKULH
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